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(54) Title: ITERATIVE DECODING WITH LIKELIHOOD WEIGHTING
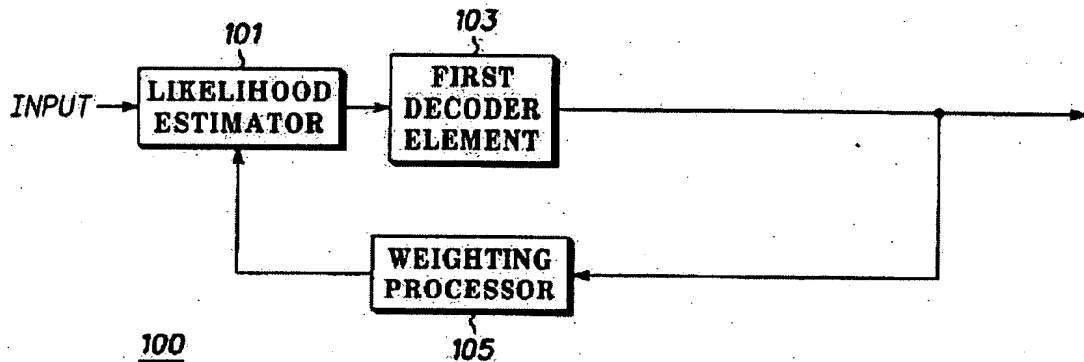
(57) Abstract: The invention relates to an error correcting decoder apparatus (100) and method. The decoder apparatus (100) com-
prises a likelihood estimator (101) which generates a sequence of bit value likelihood estimates, such as log likelihood ratios, for
multi bit symbols of a data sequence. The decoder apparatus (100) further comprises a decoder element (103), such as a Maximum A
Priori (MAP) or appropriate Soft Output Viterbi decoder. The decoder element (103) generates a decoded data sequence in response
to the bit value likelihood estimates. The decoder apparatus (100) also comprises a weighting processor (105) which generates a
weighted compensation data sequence from the decoded data sequence. The weighted compensation data is used to modify the se-
quence of bit value likelihood estimates. The decoding is subsequently repeated using the improved bit value likelihood estimates
whereby improved decoding performance is achieved. The invention may be applied to a two decoder element decoding apparatus
(200) and may specifically be applied to turbo decoders.